

**Department of Health and Human Services
National Institute of Environmental Health Sciences
National Cancer Institute**

**Minutes of the Research Process Subcommittee of the Interagency Breast Cancer and
Environmental Research Coordinating Committee**

March 28, 2011

The Research Process Subcommittee of the Interagency Breast Cancer and Environmental Research Coordinating Committee was convened for a meeting on March 28, 2011 at 1:00 p.m. via conference call. The Chair of the subcommittee is Michael Gould, PhD of the University of Wisconsin.

Subcommittee Members Present

Sally Darney, PhD
Michael Gould, PhD
Laura Nikolaides, MS
Kenneth Portier, PhD
Gayle Vaday, PhD
Cheryl Walker, PhD

NIH Staff Present

Jennifer Collins, MR
Nonye Harvey, MPH

Other

Michele Forman, PhD, MS

I. BACKGROUND

The Interagency Breast Cancer and Environmental Research Coordinating Committee (IBCERCC) is a congressionally mandated body established by the National Institute of Environmental Health Sciences (NIEHS), in collaboration with the National Cancer Institute (NCI). This Committee is comprised of 19 voting members, including representatives of Federal agencies; non-federal scientists, physicians, and other health professionals from clinical, basic, and public health sciences; and advocates for individuals with breast cancer.

The Committee's primary mission is to facilitate the efficient and effective exchange of information on breast cancer research activities among the member agencies, and to advise the NIH and other Federal agencies in the solicitation of proposals for collaborative, multidisciplinary research, including proposals

to further evaluate environmental and genomic factors that may be related to the etiology of breast cancer. The Committee serves as a forum and assists in increasing public understanding of the member agencies' activities, programs, policies, and research, and in bringing important matters of interest forward for discussion.

The objectives of the Research Process (RP) Subcommittee of the IBCERCC are integrated and dependent on the objectives and activities of the other Subcommittees¹ of the IBCERCC and include the following: to set research priorities (based on work of the State-of-the-Science Subcommittee), to decrease redundancies across federal and non-governmental organizations, to develop a process for soliciting research, to foster collaborations (based on the work of the Research Translation, Dissemination, and Policy Implications Subcommittee), to highlight peer review issues, and to identify most appropriate models for agencies to work together.

The IBCERCC RP Subcommittee held its third meeting, hosted by NIEHS and the NCI, via webinar on March 28, 2011 beginning at 1PM EST. Attendees of the meeting included Subcommittee members, NIH staff, and the IBCERCC Chair. The meeting agenda included progress updates on portfolio analyses and funding models, a review of action items from previous meetings, and discussion on additional topics related to the definition of innovation, risk versus reward, the role of advocates in the research process, funding of individual investigators versus multi-investigators, and the identification and funding of emerging science.

II. Discussion

Michael welcomed everyone to the call and asked if there were any additions or edits to the minutes from the March 3, 2011 meeting. Hearing none, Michael asked the group working on the portfolio analysis to update the group on their progress.

Gayle Vaday presented an update on the progress she has made on the DOD portfolio analysis. Gayle acknowledged that her task was a bit easier than the analysis of the NIH portfolio because the research funded was all breast cancer related. The awards are assigned scientific classification using 2 codes as follows: the CSO (previously discussed by the group) and the Scientific Classification System (SCS). The SCS is a code specific to the Congressionally Directed Medical Research Program. Gayle's analysis included awards from FY2005 – FY 2010 and awards with at least one relevant CSO or SCS code. The CSO codes included were exogenous factors in the origin and cause of cancer and interactions of genes and/or polymorphisms with exogenous and/or endogenous factors. The SCS codes included primary prevention (lifestyle; chemoprevention; nutrition; genetic risk; surgical prevention; complementary and alternative methods), biobehavioral sciences (basic biobehavioral; quality of life; decision making; communication and education; lifestyle), and epidemiology (descriptive; behavioral; gene and/or environmental; nutritional; biological). This search resulted in 123/1274 total awards (9.7%). Gayle

¹ The other Subcommittees of the IBCERCC are the State-of-the-Science Subcommittee (Chair, Michele Forman) and the Research Translation, Dissemination, and Policy Implications Subcommittee (Chair, Jeanne Rizzo).

pointed out that the search may need to be more exclusive, but that she wanted to start off by being more inclusive.

Cheryl asked why surgical prevention was included. Gayle explained that this term falls under the larger category of primary prevention, but that she was not sure that any grants in the list actually include surgical prevention.

Michele asked if both animal and human studies were included in the analysis. Gayle said that they were but that she has not stratified the data in this fashion yet. Michele encouraged her to stratify the results by in vitro/human/animal studies to aid the work of the State-of-the-Science Subcommittee.

Laura asked if proposals that are not funded get coded in a similar manner. Gayle said that they are coded, but this is done by the investigators and may not be as accurate. Laura suggested that it might be helpful to look at what was not funded.

Jenny provided the group with an update on the status of the portfolio analysis of NIH-funded breast cancer research. She has been working on this together with Heather Shaw. Their analysis did not include NCI. Due to the size and complexity, NCI staff are working on this portfolio separately. As an introduction, Jenny provided some background information on the NIH RePORTER (RePORT Expenditures and Results)². This tool is one of many electronic tools available from RePORT (Research Portfolio Online Reporting Tools) and it allows users to search a repository of NIH-funded research projects and access publications and patents resulting from NIH funding. It allows searching using the Specific Areas of Research, Conditions, or Diseases Categorization (RCDC).

Jenny explained that the RCDC is a computerized process the NIH uses at the end of each fiscal year to sort and report the amount it funded in each of 229 historically reported categories of disease, condition, or research area – including breast cancer. It provides consistent and transparent information to the public about NIH-funded research. By clicking on each of the categories, the public can access full project listings for that category and view, print, or download the detailed report. RCDC reports on three types of NIH funding: research grants (extramural research), research and development (R&D) contracts, and research conducted in NIH's own laboratories and clinics (intramural research). Jenny felt that it would be beneficial to the group to use a starting dataset that is publically available using the RCDC breast cancer category. This category was defined by scientific experts from across the NIH Institutes and Centers and using an established process³.

Using RePORTER and fiscal years 2005-2010, Jenny and Heather found 601 unique grants spanning the following funding mechanisms: research projects, research centers, R&D contracts, intramural research, interagency agreements, other research-related, SBIR-STTR, and training. There were many activity codes represented by the various mechanisms. The results were then imported into the electronic

² <http://projectreporter.nih.gov/reporter.cfm>

³ http://report.nih.gov/rcdc/category_process/Default.aspx

Scientific Portfolio Assistant (eSPA⁴) and Jenny and Heather are in the process of review each grant to determine if it belongs in the portfolio. As they are doing this, they are simultaneously classifying the grants by the major CSO categories⁵.

Once they have finished with this process, they plan on further characterizing the data in the etiology CSO category. Jenny reviewed the categories that were used for this during the inaugural meeting of the IBCERCC. For that analysis that spanned 15 years, ES staff categorized research grants as follows: those examining the impact of specific exposure(s) on breast cancer risk, those examining pathways or genes relevant to breast cancer risk, but no exposure specified, those examining the impact of specific exposures on outcomes/endpoints that have been linked to breast cancer risk, but not directly examining impacts on breast cancer (such as lactation, menstruation, etc.), BCERC/BCERP, outreach, and training. The exposures were then put into broad categories: AhR Agonists, PCBs and PCB mixtures, clinical exposures, EMF, diet/dietary exposures, EDCs, organochlorines, metals, radiation, and other.

Jenny asked the group several questions regarding the parameters for the analysis:

- Do we include all funding mechanisms?
- Do we include all activities under the funding mechanisms?
- How do we classify the etiology dataset?
- Do we leave BCERP/BCERC in its own group of data?

Additional questions from the group that is working on the portfolio analyses (specifically Ken Portier) with regard to what the group wants to obtain from the dataset:

- What level of NIH funding over the last 5 years can be attributed at least in part to issues related to breast cancer?
- How is this breast cancer funding distributed to the different types of research (e.g. the CSO major categories)?
- What fraction of this BC funding addresses research questions related to environmental factors (e.g. etiology and prevention)?
- How is BC funding related to environmental factors distributed to the different types of research (e.g. what fraction is basic biology of response to environmental factors versus research related to exposure risks to known BC carcinogens)?
- What are the goals of each of the federal research funding programs (at a high level) that impact BC and E research?

The group asked about the categories used in the September analysis for ES (for example – what are clinical exposures. She explained that the categories listed were based on the exposures that were found in the initial analysis for the September meeting and are not meant to cover all possible

⁴ <http://funding.niaid.nih.gov/researchfunding/glossary/pages/e.aspx#espa>

⁵ <http://www.cancerportfolio.org/cso.jsp>

categories of exposures. Jenny will send a list which specific exposures were matched to which category.

Cheryl asked what proportion of total NIH spending is attributable to work in breast cancer. Jenny did not know if RePORTER provides this information, but she will look into this and report back.

Nonye presented the NCI portfolio by starting with the goal of the task, which is to perform an in-depth grant portfolio analysis of NCI funded projects studying breast cancer and the environment. She discussed the four methods she used in searching through the NCI database; four tools used were: eSPA, NCI Research Analysis and Evaluation Branch (RAEB) of the Division of Extramural Activities of NCI, NCI Funded Research Portfolio (NFRBP) and NIH Research Portfolio Online Reporting Tools (RePORT). She went over the search criteria that she used: active grants, including extramural and intramural grants, project for which NCI is primary and secondary, all grant / budget mechanisms and both human subject research and animal research.

In using eSPA, Nonye discussed the list of environmental keywords that were entered individually in eSPA and the results from that search. eSPA is unable to retrieve intramural grants due to limitations of the tool. The results were categorized based on a combination of categories used for the IBCERCC fall 2010 meeting presentation, categories used by NIEHS and another used by a colleague for a paper. She reviewed the search briefly to give a flavor of the number of grants depending on the keyword / search term used; and also emphasized that there was a lot of overlap (for example: energy balance / diet) so staff will need to weed through manually to determine relevant grants and overlap. There were about 2,505 active grants in NCI studying breast cancer. A proportion of those are looking at environmental exposure but vary depending on the search term used. A detailed table of these was provided in the presentation.

Nonye mentioned that in consultation with the Chief of RAEB, she recommended we use the RCDC (Research, Condition, and Disease Categories) for coding environmentally-related grants and also to contact someone at the NCI Budget Office to get guidance on NCI Intramural portfolio. RAEB does not provide data on intramural grants or on grants for which NCI is secondary. RAEB has their own Special Interest Categories (SIC) which contain keywords that they use in searching for breast cancer and environment grants. Nonye provided a list of the SIC used. The results for active NCI grants for FY2010 are 148 research projects and for FY2011 are 146 research projects. She estimated that the proportion of total number of active breast-environment grants compared to the total number of active breast cancer grants (using N=2,505 from eSPA) is about 12%.

Nonye discussed the search criteria and results using the NFRP tool; a publically available tool that can search active grants, however limited in the sense that it can't search for all 'active grants' at once but rather individual fiscal year searches. Nonye mentioned that she searched for grants from FY2005-2009 with CSO codes 2.1 (exogenous factors in the Origin and Cause of Cancer) and 2.3 (interactions of gene and/or genetic polymorphisms with exogenous and / or endogenous factors), all relevant NCI divisions and all research emphasis areas including etiology, prevention and epidemiology. The results from this

search (FY2005-2009) yielded 539 grants (391 extramural and 148 intramural). Looking at just extramural grants that are considered active, i.e. with end dates in 2009 and beyond, there were 269 grants total. Intramural grants didn't have an end date and will need to get guidance on what this means.

The last tool that Nonye discussed was the NIH RePORT tool, which is what NIEHS also used. This is also a publically available tool that can access reports, data and analyze research activities. She discussed the criteria and results, with criteria being just breast cancer and FY2005-2009. The results yielded 1,640 active NCI grants, with 801 being human studies and 839 being animal (non-human) studies.

Nonye had a few questions for the group was to help define what should be included and considered in environment search terms, how to categorize so there's uniformity across the various efforts, which grant mechanisms to focus on and whether to include drugs and treatment in the searches. The next steps for NCI would be to weed through the different results and figure out which grants are relevant, etc. One question from Michele Forman was whether there was a way to link publications to grants that may have expired (i.e. not necessarily active at the moment) but were instrumental in generating good science today e.g. GEI. Nonye said that this could probably be done through eSPA but would be challenging unless the specific topic area is searched.

There was further discussion to get clarity on what we wanted to get from all this data from the portfolio analysis. Michael suggested that a part of it is to identify where the overlap is, i.e. in similar projects funded by different agencies or overlap in the science that's being funded. Laura mentioned that identifying the overlaps could lead to better collaboration on projects.

Ken asked what the group wanted to get from our database and suggested overlaps and gaps. He mentioned that it would be nice to breakout the data into epidemiology, human clinical and in vitro because it's likely there will be some overlap in in vitro research.

Michael indicated that we needed to start writing this chapter on portfolio analysis and methods for portfolio analyses.

The second chapter will cover funding models. Sally and Cheryl will take the lead on this. In summarizing research on funding models, Sally discussed that in her research on state funding models, particularly for North Carolina, she found out that North Carolina funds cancer research through the Lineberger Cancer Center funds and California has a lot of research and reported that she was recently on a tobacco research panel.

Can we learn something from the state because they have more freedom? Cheryl proposed that Texas is an example of the downside of what happens when the state is allowed to fund what they want.

Sally indicated that there were no examples of breast cancer models from EPA. However, models that could be applied to breast cancer from EPA would still be informative.

Michele Forman asked about whether the SPORES and Cancer Centers can be reviewed and considered as funding models. Cheryl Walker did not think that state models will be good models or a huge source of innovative ideas but the group should think about what is useful from and what has been learned from state initiatives. Sally, Cheryl, and Laura will continue to discuss this chapter and Jenny will set up meetings. Dale and Ken will be added to this working group list.

Michael then followed up on action items from previous meetings. Cheryl led a discussion on ideas for being good stewards of resources and the balance between investigator-initiated ideas versus targeted strategies. There are initiatives that are poorly funded that have lots of effort associated with applying to them. She proposed that most novel/ground breaking ideas come from a single person and are not often attributed to a systems biology approach.

Laura suggested that we find models in other areas of science that might work for breast cancer. She urged the group not to limit models to breast cancer and the environment.

The Health Research Alliance is having discussion about other models that do not require researchers to generate a lot of proposals. Ken will share what he has.

Sally will send around some notes on models being used in health research. Michael mentioned that we need innovative models.

Nonye summarized briefly the NCI Internal coding process. She mentioned that this process is outlined on the NFRP website on how NCI does its scientific coding of grant applications. When the NCI Division of Extramural Activities refers grants to the appropriate programs, program staff assign scientific codes to these grants using an internal coding sheet that reflects each Program's/Division's unique area of research (varies by Division). The coding sheets include pre-determined categories based on Scientific Topic Areas (Health Disparities Research), scientific disciplines (i.e. environmental epidemiology), and Organ Site/ICD-10 codes. Grants and scientific coding are uploaded into IMPACII (Information for Management, Planning, Analysis, and Coordination) database, a searchable database that allows NCI staff to easily identify grants within or across disciplines, across the entire NCI portfolio, by using scientific codes and/or complex text searches.

Gayle led the discussion on innovation and the DOD definition of innovation. She mentioned that the DOD award mechanisms promote innovation and that there is language in the program announcement that requires applicants to address innovation. The DOD conducts a pre-review of ideas first and then invites investigators with innovative ideas to apply. Sally discussed the EPA approach where they call for ideas, very short proposals that are not funded for long, maybe for one year. Then applications are reviewed by people outside of Office of Research and Development. This helped remove a lot of barriers to funding innovative research. Laura reminded the group about the NSF Ideas Lab.

Gayle suggested that there could be a requirement that advocates be integrated into the entire application process from start. Laura agreed that advocates should be involved with decision making and integrated into the funding institutions, and be involved in intramural and extramural research. In response to Ken's comments on who we are referring to as advocates versus stakeholders, based on expertise, etc., the group agreed to use the term 'stakeholder' instead of 'advocate'.

Michael brought up the challenge of scientific review. He proposed that if someone has a good idea and is weak in the materials and methods, they should get a chance to try their idea. They will find a way to get it done.

Cheryl commented that how reviewers handle their charge is critical. Michele followed with the suggestion of better socialization of reviewers into the process.

Laura reminded the group that at the end of the day, the ultimate goal of the research should be aimed at reducing morbidity or mortality and new ideas are needed to get to the end result.

Investigators should be able to respond to a call for ideas for short proposals for limited funding/time to do preliminary work and then be allowed a second round prove that you can do it.

Gayle said that DOD has an example of a short proposal that required a 5 page essay.

Laura led a discussion on how to get agencies communicating on what they are funding in the areas. What is it about breast cancer and the environment that may require interagency involvement? Sally described the Idea scale that EPA uses.

Michele proposed an NIH to cover breast cancer research. They are doing something like this for the NCS.

Funding agencies have to think about management of the projects – give PI large freedom to get the team he needs. With reference to training and mentoring, Ken discussed the need for an insightful leader who can capture innovative ideas, put the ideas together and present them as the next research to focus on. We need true leaders for multi-investigator teams.

The group went on to discuss the funding of individual investigators – should this be done and how should investigators be selected. Michael thinks that we should be funding individual investigators and asked Gayle about the DOD's process for evaluating investigators. Gayle said that there was no formal evaluation of funded investigators because she is not sure what it will be based on. Michele suggested going to professional society meetings and conducting a half day workshop to train investigators on types of award. The group discussed that there was a generational issue where the new generation is trained in GWAS versus environmental assessment because GWAS is less challenging and more rewarding.

In discussion of identification and funding of emerging science, Sally mentioned that EPA does not have or do much in investigator-initiated research.

In wrapping up the call, Michael suggested that both subcommittees (SOS and RP) get together to identify what the gap is and where the emerging areas are. This will be added to the May meeting agenda.

The first chapter will focus on the research portfolio and the next step now is to turn into an outline for a chapter. Jenny will set up a call to discuss outline. The draft outline will be due by April 21. Michele asked that research portfolio group to have more granulation in the portfolio data as it will be helpful for the SOS. Michele will send the group what the SOS is looking for so we can mesh the work of both committees. The second chapter will summarize the funding models. The first two chapters will essentially be the background material that will indicate where we are.

The second chapter will focus on research models. Michael is requesting slides and an outline from that group by April 21. The group should cover strengths/weaknesses of various models that exist for breast cancer and environment research and cover innovative/successful models from other areas of research. The group will discuss how this chapter should be fleshed out on next call.

III. Action Items due April 21

- Michele will send the group what the SOS is looking for so we can mesh the work of both committees.
- Ken will get more information on the HRA model
- Jenny will set up a call for the funding models group and the research portfolio group to start working on a draft outline.
- Sally will send around some notes on models being used in health research.

IV. Adjournment

The meeting adjourned at 3:30 p.m. on March 28, 2011.

CERTIFICATION

I hereby certify that, to the best of my knowledge, the foregoing minutes and attachments are accurate and complete.

/Michael Gould/

Michael Gould, PhD

Chairperson

Research Process Subcommittee

Interagency Breast Cancer & Environmental Research Coordinating Committee

/Gwen W. Collman/

Gwen W. Collman, PhD

Executive Secretary

Research Process Subcommittee

Interagency Breast Cancer & Environmental Research Coordinating Committee

Proper signatures

Treat as signed, § 1.4(d)(2)